

## Steps towards Updating the Curriculum and Teaching Methods in Obstetrics, Gynaecology and Neonatology in Mongolia

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### Abstract

**Background:** Medical education in Mongolia faces many challenges in terms of staff capacity, large student numbers, and limited access to clinical experience. The Government of Mongolia has placed a high priority on reducing maternal and infant mortality, necessitating improvements to the quality of medical training, ensuring a highly skilled health workforce is produced and maintained. In 2014, a team of academic staff from Sydney Medical School were appointed by United Nations Population Fund (UNFPA) to assist in reviewing and updating the medical student curriculum in obstetrics, gynaecology and neonatology in accordance with international best practice. The first phase involved a visit from a senior delegation from Mongolia, including representatives from the Mongolian National University of Medical Sciences (MNUMS), UNFPA and the Mongolian Ministry of Health to Sydney. The week long programme was designed to demonstrate best practice in obstetrics, gynaecology and neonatology undergraduate medical education; and display modern teaching practices.

**Methods:** Course design included demonstration and participation in a four station Structured, Clinical, Objective, Reference, problem-oriented, Integrated, and Organised (SCORPIO); observation of a Clinical Reasoning Session (CRS); demonstration and participation in a four station OSCE, and teaching of best practice in writing single-best answer multiple choice questions. Participants also took part in a teacher training session. The programme was implemented at a large teaching hospital in Sydney, Australia. We employed mixed-methods to evaluate the programme, using pre- and post-questionnaires and a focus group.

**Results:** The programme increased participants' perceived understanding and ability to apply educational principles, plan learning activities, and provide feedback. In particular, participants perceived that their understanding how to implement SCORPIO, CRS and OSCE had increased. However, participants would have liked greater opportunity to observe bedside teaching. Participants foresaw challenges to the implementation of educational changes in Mongolia, including the anticipated difficulty of engaging hospital staff in teaching; implementing a student-centred approach to teaching; and providing a large number of students with adequate clinical experience.

**Conclusion:** Changes in educational strategy in Mongolia may assist medical schools to produce clinically competent graduates. Our programme provided an effective means to introduce Mongolian leaders in health and education to modern student-centred medical education teaching and assessment methods; and to highlight the importance of teacher training and evaluation as a strategy to engage both university and hospital staff in medical education. Additionally, programme outcomes assisted in subsequent phases of the project, including in-country needs assessment, curriculum development and delivery.

**Keywords:** Obstetrics; Gynaecology; Neonatology; Undergraduate teaching; Curriculum medical education

OSCE Objective Structured Clinical Examination; CRS: Clinical Reasoning Session

### Abbreviations

SCORPIO: Structured, Clinical, Objective, Referenced, Problem-oriented, Integrated and Organised; PT: Peer Teaching; SMP: Sydney Medical Programme; PPH: Post-Partum Haemorrhage; ISBAR: Identity, Situation, Background, Assessment and Recommendation;

### Background

Medical education in Mongolia faces many challenges in terms of staff capacity, the large number of public and private medical schools and students' limited access to clinical experience. The Government of Mongolia has placed a high priority on reducing maternal and infant mortality, and has made significant progress since 2001 [1]. The major

focus of maternal health has resulted in 81% of women attending at least four antenatal visits and 98% of women being delivered by skilled birth attendants (98.0%), along with government efforts to build capacity of doctors, introducing universal standards and guidelines for services needed for delivery [2]. However, care of new-borns is lagging with new-born deaths accounting for 56.7% of all incidents of under 5 mortality in Mongolia; levels that have remained stagnant during the last decade. Despite advances in maternity care, the Maternal Mortality Rate of 68 per 100 000 live births in 2010, is relatively high compared to countries with similar service coverage and large disparities exist between urban and rural residents and between women of different socio-economic backgrounds. An assessment of Basic Emergency Obstetric and New-born Care needs conducted by the United Nations Children's Fund (UNICEF) and the Ministry of Health in 2010 found very few staff was properly managing deliveries (13%) and there was a lack of skills in new-born care, particularly in performing neonatal resuscitation [3]. Interviews with clients revealed counselling of mothers was insufficient in urban hospitals with only 10% of clients prepared for possible complications during childbirth. Improvements are needed in the quality and standards of care, clinical protocols, and guideline development.

Mongolia has experienced significant health sector reform. The Mongolian Health Sector Strategic Master Plan (2006-2015), a long-term policy framework – was approved in 2005 [4]. The objectives of the plan include increased life expectancy, a reduction in the infant, child and maternal mortality rates, improved nutritional status, particularly micronutrient status among children and women, reduced household health expenditure, especially among the poor, a more effective, efficient and decentralised health system, and an increase in the number of client-centred and user-friendly health facilities and institutions. Improving the quality of care is a key objective and a requirement for achieving the plan. This will necessitate quality training and a highly skilled health workforce.

For a long time medical education in Mongolia followed the former Soviet school of medicine. Although evidence-based international clinical guidelines are now available, the management of common complications of pregnancy, childbirth and the postpartum period for mother and baby, as taught in the medical student curriculum, has been slow to incorporate these ideas. The recommended textbooks are from the Russian language and are outdated. A survey among graduates of the medical schools in Mongolia revealed that training was heavily biased towards the basic sciences and that there was a lack of exposure to common clinical conditions.

The Mongolian National University of Medical Sciences (MNUMS) is the main state funded university providing training to medical students and over the six year programme, has approximately 450 students per year. Obstetrics and Gynaecology has been taught in year four and six of the programme, with limited teaching in neonatology during the paediatric term. MNUMS falls under the Ministry of Education and Sciences, but the hospitals responsible for providing clinical experience, including the First Maternity Hospital, fall under the Ministry of Health. These teaching hospitals have become overcrowded with undergraduate and graduate students and this

problem, combined with a lack of clinical skill laboratories, means that many graduates emerge from the course lacking in basic skills in managing normal pregnancy and common new-born/neonatal problems. In collaboration with the Government of Mongolia, the UNFPA 5th Country Programme (2012-2016) plans to upgrade graduate and residency curricula of the MNUMS in obstetrics and midwifery training according to the international guidelines [5]. To achieve this, UNFPA sought consultancy from Sydney Medical School. Although no mention was made in the Country Programme (2012-2016) report regarding inclusion of neonatology within the curricula, it is important to note that this forms an essential component.

In 2014, a team of academic staff from Sydney Medical School, The University of Sydney responded to a tender by UNFPA to review and update the Obstetrics and Gynaecology and Neonatology curriculum for the Mongolian National University of Medical Sciences (MNUMS). The team comprised an Obstetrician and Gynaecology, a Neonatologist, and an Educationalist. The purpose of the project was aligned with the aims and objectives identified in Mongolia's Health Sector Strategy (2006-2015) [4]: to review and update the obstetrics, gynaecology and neonatology curriculum for undergraduate medical students in accordance with international best practice, and in accordance with the institutional mission of the MNUMS. The project was undertaken in three phases. Phase 1 involved a visit from a delegation from Mongolia to the Sydney Medical School. Phase 2 involved a needs assessment visit from the Sydney Medical School staff. Phase 3 involved a return visit to Mongolia to deliver the curriculum.

Phase 1 of the consultancy involved a week long programme that formed part of the initial process towards the development of the O&G curriculum in Mongolia. The programme was designed to both emphasise and demonstrate best practice in undergraduate medical education within obstetrics, gynaecology and neonatology and to introduce and demonstrate modern teaching methodologies. The purpose of our study was to evaluate Phase 1 of the project.

## Methods

### Course design

Course design included demonstration and participation in a four station Structured, Clinical, Objective, Reference, Problem-oriented, Integrated and Organised (SCORPIO) [6,7]; observation of a Clinical Reasoning Session (CRS) [8]; demonstration and participation in a four station Objective Structured Clinical Examination (OSCE) [9]; teaching of the ISBAR method of handover (Identity of patient, Situation, Background, Assessment and action, Response and rationale) [10]; teaching of best practice in writing single-best answer multiple choice questions; and a half day attendance at a Hospital conference designed to provide update of current relevant topics in Obstetrics, Gynaecology and Neonatology. Participants also took part in a half day teacher training session. Topics within the programme are outlined in Figure 1.

- An introduction to the Sydney Medical Programme (SMP)
- An overview of the SMP Obstetrics, Gynaecology and Neonatology curriculum
- Teaching in professionalism
- Introduction to SCORPIO and practical application as a candidate in the SCORPIO (Structured, Clinical, Objective, Referenced, Problem –based, Integrated and Organised) [5,6]. Stations included Post-Partum Haemorrhage (PPH), Normal Vaginal Delivery, Newborn Anthropometry, and Resuscitation of the Neonate.
- Introduction to Teaching skills training (Bedside teaching, small group teaching, giving feedback)
- Introduction to ISBAR teaching (Identity, Situation, Background, Assessment and Recommendation) [9].
- Introduction to OSCEs and practical application as a co-examiner. Stations included Respiratory distress, pap smear, caesarean) [8]
- Observation of Clinical Reasoning Sessions (CRS) [7]
- Introduction to Single Best Answer examination (SBA)
- OSCE writing session
- half day attendance at a Hospital conference designed to provide update of current relevant topics in Obstetrics, Gynaecology and Neonatology.

**Figure 1:** Topics covered during the week.

### Course participants

Six Mongolian delegates participated in the programme, including three females and three males. Delegates included four staff members from the MNUMS, including two obstetricians and gynaecologists and two senior academic staff; a technical adviser from Reproductive Health, UNFPA; and a senior staff member from the Mongolian Ministry for Health. No neonatologist/paediatrician was included.

### Course facilitators

Expertise was drawn from various departments within Sydney Medical School and Royal Prince Alfred Hospital. Facilitators included two neonatologists, two midwives, three obstetricians and gynaecologists, one respiratory paediatrician, one surgeon, one educationalist, and one statistician. All facilitators had previous training and experience in teaching and assessment within the medical education context.

### Study design

We employed a mixed-method study using both a structured questionnaires and a focus group to investigate participants' perceptions of the programme.

### Quantitative data

Quantitative data were collected by pre and post-programme questionnaires, reflecting on participants' perceived ability with respect to the learning outcomes of the programme. Participants were asked to respond to 11 closed questions, such as "I understand how to set up

and run an OSCE", using a five-point Likert scale ranging from 'strongly disagree' (1) to 'strongly agree' (5). Data were analysed using descriptive statistics [11].

### Qualitative data

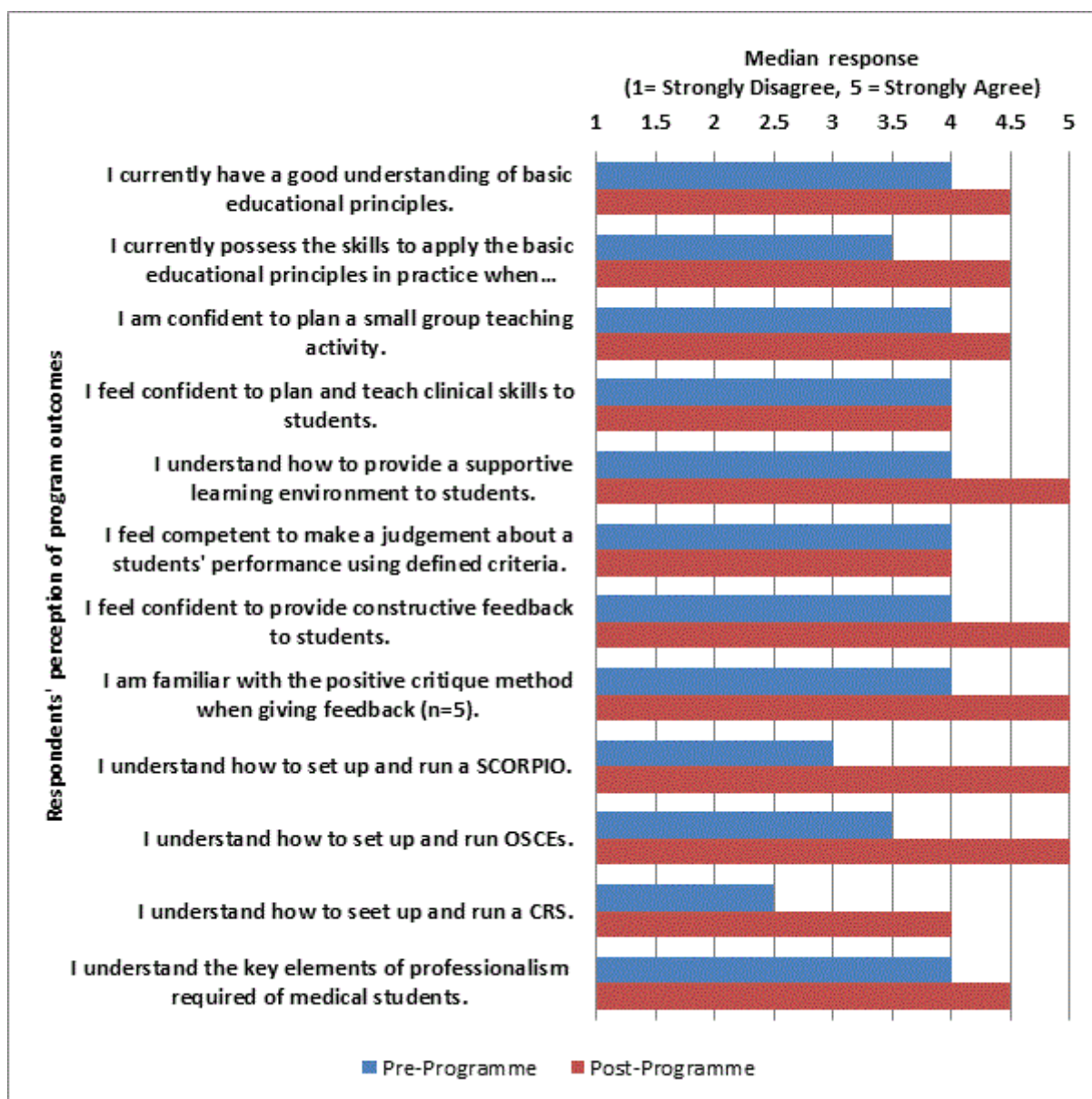
Qualitative data were collected by questionnaire and focus group. Open ended questions were included in the post questionnaire to identify participants' perceptions of the programme. Additionally, all participants were invited to attend a focus group session to explore their perspectives, attitudes and experiences of the programme in depth. The session was taped and transcribed verbatim. Thematic analysis was used to code, categorise and identify themes in the qualitative data [12].

### Ethics approval

Our study was carried out with the approval of the University of Sydney Human Research Ethics Committee.

### Results

All six delegates completed the programme. Four of the participants reported having previous teaching experience, as well as having completed a professional development programme. As shown in Figure 2, the programme increased participants' perceived understanding and ability to apply educational principles, plan learning activities, and provide feedback. In particular, participants perceived that their understanding of a CRS, OSCE and SCORPIO had increased.



**Figure 2:** Comparison of Mongolian delegates' (N=6) Pre- and Post-programme median responses regarding perception of intended programme outcomes.

Qualitative responses by participants gave an indication of their attitudes to different aspects of the programme. These are categorised as: 1) most useful aspects of the course, 2) needs for improvement and 3) anticipated challenges for change implementation.

### Most Useful Aspects of the Course

When asked "What were the most useful aspects of the course?" participants particularly valued learning about modern teaching and assessment methods with learner centred approaches to teaching. These teaching methods included SCORPIO, Clinical Reasoning Sessions (CRS), ISBAR and OSCE, as presented below.

### SCORPIO

Participants felt that during the SCORPIO, learning was driven not only by active participation, but also by formative assessment and feedback from teachers.

*"The best training for the clinicians happens during the SCORPIO event. They were also assessed during this."*

Participants felt that the SCORPIO allowed evaluation of the teaching.

*"We were doing the SCORPIO, but the clinician who was presenting the case, was actually scored by the professors, so I think this was the*

best way to train clinicians and also get them very interested in this type of training.”

### Clinical Reasoning Session (CRS)

On observation of the CRS, Mongolian delegates were impressed by the quality and commitment to teaching by a non-university (hospital employed), junior registrar, who had facilitated the session.

*“It was very impressive...the quality of the discussion...the capacity of this registrar, who is not university staff, dealing with each of the students, trying not to leave anything out, giving clear answers.”*

Teaching in Mongolia takes place in much larger groups of 10-20, working on different cases, with multiple groups facilitated simultaneously by one tutor, and with less active participation by students.

*“I was very impressed with the capacity of the students to respond and to discuss, what not an easy case was at all. However, they were always having something to say. It’s very different in Mongolia, we have 10 in one group, here are 6 or 7. Teachers have three to four small groups and different problems are used for each group.”*

### ISBAR

Participants felt the use of ISBAR in both undergraduate and postgraduate medical education may provide a useful teaching method for communication skills.

*“The ISBAR was very good. We lose a lot of time when we are communicating. Sometimes we don’t understand what they are stating, and we’re very confused. So this was very concise. I think the best thing for this, for example, when we train student to give the student presenting the case. We can teach them to be concise and precise. Otherwise sometimes the student does not really know how to express themselves. There is a lack of communication skills. This is also needed for our teachers.”*

### Teacher Training Course

Participants felt that teacher training would help to generally focus teaching on the need for learner-centred approaches to teaching.

*“This is sometimes a missing point in Mongolia. Because the teacher are very teacher-like, and clinicians very clinician like. There are gaps, so it will be useful to train teachers.”*

Further to this, participants felt that implementation of teacher training would build engagement in teaching from both hospital and university staff.

*“This will create a very good connection between hospital and university. But our side is university, so clinical is clinical, so there’s a very big gap here.”*

### OSCE

Participants felt that although they already have OSCEs in within the medical curriculum, improvements would likely increase the objectivity and standardisation of this method of assessment.

*“We do OSCE already, but this should be very well standardised. Maybe we rely more on the teachers’ experience, but this is more*

*detailed and more objective, in this one, they use that kind of system. We can improve the process of the OSCE, it’s clearer.”*

### Multiple Choice Setting with Single Best Answer

Participants found it useful to be briefed on question writing and standard setting in MCQ.

*“There were some useful tips actually to improve the questions... Like more negative questions.”*

### Suggested Improvements to the Programme

Participants’ expectations were largely met during the week long programme. However, participants reported that they would have liked to have gained information and experience regarding the curriculum content and bedside teaching. In particular, Mongolian staff were disappointed that they were not provided with an opportunity to observe bedside teaching in Obstetrics, Gynaecology and Neonatology.

*“We wanted to see bedside teaching, curriculum content, student lectures, student log book.”*

### Anticipated Changes

When asked how they felt changes might be implemented in Mongolia following the week long program, participants felt motivated to introduce SCORPIO and ISBAR, and introduce more interactive, student-centred approaches to teaching. They viewed formative assessment with feedback to be integral to improving students’ learning outcomes.

*“We will change our teaching environments...we will use interactive teaching. But we begin by introducing SCORPIO and ISBAR... We will introduce formative assessment with feedback.”*

*“We will use the positive critique method when giving feedback.”*

### Future Challenges for Implementation

Participants identified five key challenges to the design, implementation of change in the Mongolian curriculum. These included access to the large hospitals; large number of students; lack of resources; engaging hospital staff in teaching; and ensuring collaboration between government departments.

*“One of the challenges when we return is to get more space and facilities for the teaching from bigger hospitals there. And in this case it’s a trade-off I think, these facilities and this faculty also can use this methods actually to train the staff that is already working, like young doctors, midwives. And so this will be a kind of trade-off, for the hospitals to collaborate. So I think hopefully the Ministry will push on this. We’ll also advocate for collaborate between the Ministry of Health and medical university and other hospitals, because it is very important.”*

*“Very timely training as the MNUMS is in a time of change. Now leadership to influence the hospitals to provide facilities and staff is going to be very important.”*

*“The teaching environment is poor. We will need constant training and a change in attitudes of other team. There are also logistics issues with the hospitals.”*

*“Accommodating large numbers of students and lack of training manikins and instruments.”*

## Discussion

The purpose of this study was to evaluate Phase 1 of the consultancy, which was designed to highlight best practice in obstetrics, gynaecology and neonatology undergraduate medical education; and demonstrate modern teaching practices. Participants identified benefits to the programme; made suggestions for improvement; and anticipated challenges to implementation of curriculum improvements and modern teaching methods in Mongolia.

The programme increased participants' perceived ability to apply basic educational principles, plan teaching activities, create supportive learning environments, and provide constructive feedback to students. Participants were introduced to student-centred, small group teaching and assessment methods, including SCORPIO [6,7], and Clinical Reasoning Sessions (CRS). They reported an improvement in confidence in being able to deliver these different teaching methods. Although the Objective Structured Clinical Examination (OSCE) is an assessment method already used widely in Mongolia, participants reported an increased understanding of this technique. There were some areas for which they sought greater exposure including a deeper understanding of the content of the Australian obstetrics, gynaecology and neonatology curriculum, and demonstration of clinical teaching through bedside tutorials. The intensive course provided the participants with ideas for improving their teaching, assessment and feedback methods. However, they recognised they faced significant barriers to implementing changes.

The shift from teacher centred approaches to education to a student centred one was recognised as the key to successful transition but the major challenge. The move to learner centred strategies which commenced in the 1990s [13] had major implications for faculty development at all levels from the institutional to the individual. Mongolia has yet to adopt a learner centred approach to medical education and has been adhering to the Soviet model of the teacher as the person who determines what, when, and how learners will learn. Didactic teaching has remained the predominant method. The delegates recognised the importance of creating an environment in which students can learn effectively and efficiently [14]. In fact, having the Mongolian delegation actively participate in SCORPIO, OSCE and ISBAR sessions, may have reinforced the benefits of these strategies [15].

The role of feedback, following observation of skills performance and formative assessment, was recognised by participants as integral to improving learning outcomes for students and enriching their learning experience. This is likely due to the repeated use of feedback within the SCORPIO and the formative OSCE, as well as the demonstration of feedback itself as a learned skill within the 'teacher training' session. Despite the important role of feedback in effective teaching and learning, skills in giving feedback are rarely taught to clinicians [16], something that participants would like to address within medical education in Mongolia.

Challenges for the future influencing the culture within the hospitals so that clinical staff understand the important role they play in educating the next generation of doctors and are able to work collaboratively with the academic staff to ensure students are exposed to a wide range of clinical experiences. Without being properly addressed, this issue may be compounded by the pending addition of

new public and private hospitals, and rise in student numbers [16]. The Mongolian delegation felt that few academics or clinicians had been formally taught how to teach, assess or provide feedback to students, an issue also highlighted in developed countries [16-18]. On a positive note, participants felt that the introduction of 'teacher training' may provide an avenue to engage staff from both entities (hospital and university), in a collaborative effort to improve the quality of teaching. Indeed, in order to increase the quality of medical education, hospital medical culture needs to embrace education as a core task in health care [18].

## Limitations

The small sample size is a limitation of this study.

## Conclusion

Major problems facing medical education in Mongolia include the large number of students; limited opportunities made available for clinical experience, and restricted leadership in medical education. Changes in educational strategy will assist medical schools to produce clinically competent graduates. Our Phase 1, week long programme provided an effective means to introduce Mongolian leaders in health and education to current student-centred medical education strategies; assessment methods that ensure that competence is assessed rather than simply recalled; and to highlight the importance of teacher training and evaluation as a strategy to engage both university and hospital staff in medical education.

## Competing Interests

The authors declare that they have no competing interests.

## Authors' Contribution

AB, HJ, KB: Contributed to the study design, analysis and interpretation of data, drafting of manuscript, and critical revision for important intellectual content. SB, EN: Contributed to the critical revision of the manuscript for important intellectual content. All authors read and approved the final manuscript for important intellectual content.

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